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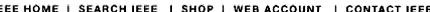Release Notes | IEEE Online Publications | Help | FAQ| Terms | Back to Top

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Method and system for robot end effector path correction using 3-D ultrasound sensors

Veryba, Y.   Kourtch, L.   Verigo, B.   Murashko, V.
Dept. of Mech. Eng., Belarussian State Polytech. Acad., Minsk;

Abstract:
A method and system for correcting a preprogrammed robot end effector path t
reduce the kinematic error are developed. The approach used in the method is t
mount 3D ultrasound position sensor on the robot end effector and compute 3D
Cartesian position of this sensor using 1D range measurements between the
senders and an array of ultrasound receivers at fixed, predetermined positions.
The method and system allow speedy correction of a robot path with economica
usage of computer resources. The method includes steps of sensing and measur
path offsets between the idealized end effector location and the actual location
the manipulator end effector at a plurality of waypoints. Then, after appropriate
calculations, the method includes the steps of correcting the coordinates of
waypoints within the preprogrammed path, transforming the preprogrammed p.
coordinates into machine control coordinates, and providing a controller for the
robot manipulator with such machine control coordinates. A 3D ultrasound posit
sensor used in the method provides low-cost, high precision measurements of t
Cartesian position of a robot end effector within the robot workspace

Index Terms:
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position sensor Cartesian position US receiver array kinematic error machine control
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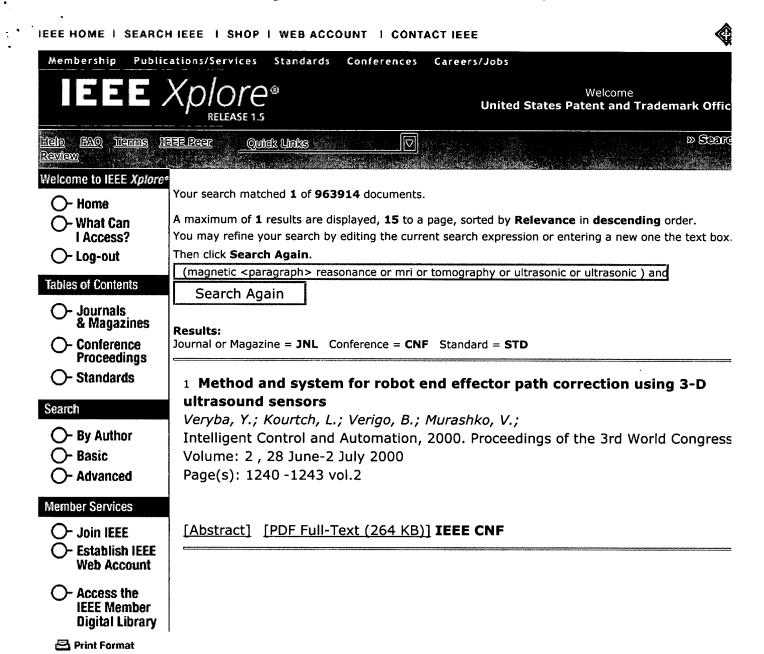Select link to view other documents in the database that cite this one.

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Intelligent Control and Automation, 2000. Proceedings of the 3rd World Congress
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